DETAILED ACTION

Response to Amendment

1. Claims 1, 28 – 39 have been amended.

2. Claims 2, 13-14, 27, 40 -42 have been cancelled.

3. Claims 1, 3 - 12, 15 – 26, 28 – 39 are pending.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Regarding claims 28 – 39, the newly amended claim subject matter “non-transitory computer readable medium” and its potential functions are not defined and disclosed in the Specification at the time the application was originally filed. Clarification and appropriate correction are required.

Claim Objections

5. Claim1 is objected to because of the following informalities:

Regarding claim 1, in line 5, the claimed subject matter “based on path status information” should be corrected as “based on said (or the) path status information”. Since the claimed subject matter refers back to the previous defined subject matter. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28 – 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was **originally filed**, had possession of the claimed invention. Regarding claims 28 – 39, the newly modified claim subject matter "non-transitory computer-readable medium" and its potential functions are **not defined and disclosed in the Specification** during the time **while the application was originally filed**. Clarification and appropriate correction are required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 3,16, 29, 4, 17,30, 5,18, 31, 6, 19, 32, 7, 20, 33, 8, 21, 34, 9, 10, 13, 15, 22, 23, 26, 28, 35, 36, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bare (US 6865160 B1) in view of Wallentin et al. (US 6347091 B1)

Regarding claim 1, Bare discloses a load distributing method *("method", "load balancing"; Abstract, Fig. 1, col. 3, lines 47 – 67, col. 9, lines 45 – 56)* comprising the steps of: monitoring a path status of each path selectable of every packet input to a transmission node between two nodes *("....be fairly distributed across all possible*

paths,…..The path picked will be based on cost.,…..", "….all devices are attached to a common link and monitor for their specific assigned address If non-point-to-point links are used…"; Fig. 32, col. 10, lines 6 – 14, lines 30 – 48), each of which can select plural communication paths, and storing path status information on said path status ("…will keep a table of the costs for all paths to a given switch,…."; col. 10, lines 30 - 48) and a time from which said path status information is effective *("…..new sources learned may take a different path than those learned earlier. When source addresses timeout and are relearned, they may take a different path than during their previous instantiation depending on link loads at the current time,…."; col. 10, lines 49 – 65)* or packet identification information.

Bare does not disclose explicitly estimating a packet arrival prediction time in each path, based on path status information, and a packet transmission history after the time from which said path status information is effective or a packet transmission history after transmission of a packet specified with said packet identification information; and updating path selection or selection priority, based on said estimated arrival prediction time.

Wallentin et al. (US 6347091 B1) in the same field of endeavor teach estimating a packet arrival prediction time in each path, based on path status information, and a packet transmission history after the time from which said path status information is effective or a packet transmission history after transmission of a packet specified with said packet identification information *(Abstract, Fig. 7, Fig. 8, elements 63, 64, "……, predicted packet arrival time,….,,, based on the stored past packet arrival time"; col. 9, lines 12 – 41, col. 10, lines 18 – 47)*; and updating path selection or selection priority,

based on said estimated arrival prediction time *(Fig. 12, Fig. 13, col. 12, lines 19 – 44)*. At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Bare to include the features of estimating a packet arrival prediction time in each path, based on path status information, and a packet transmission history after the time from which said path status information is effective or a packet transmission history after transmission of a packet specified with said packet identification information as taught by Wallentin et al. One of ordinary skill in the art would be motivated to do so for providing mobile communications, and in particular, to dynamically adapting a data communication connection to an optimal state *(as suggested by Wallentin et al., see col. 1, lines 14 – 16).*

Regarding claims 3, **16, 29**, Bare discloses the load distributing method, node and non-transitory computer-readable medium claimed wherein said path status information includes a delay of a path *("latency"; col. 10, lines 6 – 14; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claims 4, **17, 30**, Bare discloses the load distributing method, node and non-transitory computer-readable medium claimed wherein said path status information includes a transmission rate of a path *("…defining the maximum rate of ….."; col. 2, lines 47 – 55; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claims 5, 18, 31, Bare discloses the load distributing method, node and non-transitory computer-readable medium claimed wherein said path status information includes a load of a path *("….loads fairly across all the load-balancing switch paths"; col. 9, lines 45 – 56; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claims 6, 19, 32, Bare discloses the load distributing method, node and non-transitory computer-readable medium claimed correcting a transmission cost calculation result regarding a packet transmitted before updating path status information of each path, when the path status information is updated for said path selection or for said selection priority update *(col. 10, lines 6 – 14; col. 22, lines 36 – 44; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claims 7, 20, 33, Bare disclose the load distributing method, node and non-transitory computer-readable medium claimed discarding a history prior to a first packet transmitted on or after a time from which the latest path status information is effective, when a transmission cost calculation result of each path is corrected *(col. 13, lines 15 – 22, col. 22, lines 36 – 44, col. 24, lines 28 – 54; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claims 8, 21, 34, Bare discloses the load distributing method, node and non-transitory computer-readable medium claimed further selecting as a packet transmission path a path having an earliest estimation value of a reception completion time at a reception node *(col. 34, lines 7 – 20; "storage medium", col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31).*

Regarding claim 9, Bare discloses the load distributing method claimed comprising the step of selecting as a packet transmission path a path having a largest estimation value of a data amount, which can be completely received by a specific time at a reception node *(col. 13, lines 5 – 8)*.

Regarding claim 10, Bare discloses the load distributing method claimed comprising the step of interrupting data transmission according to an estimated current path status in each path *(col. 20, lines 2 – 13)*.

Regarding claim 15, Bare discloses a node *(Fig. 7, Fig. 32)* for selecting plural packet transmission paths *("load balancing"; Abstract, Fig. 1, col. 3, lines 47 – 67, col. 9, lines 45 – 56)*, comprising: monitor means for monitoring a selectable path status of each path every packet input at a transmission node and monitoring path status information on the path status *("….be fairly distributed across all possible paths,…..The path picked will be based on cost.,…..", "….all devices are attached to a common link and monitor for their specific assigned address If non-point-to-point links are used…"; Fig. 32, col. 10, lines 6 – 14, lines 30 – 48, col. 12, lines 35 – 59),* and memory means for storing said path status information and a packet transmission history available after said path status information is validated *("…will keep a table of the costs for all paths to a given switch,…."; col. 10, lines 30 – 48; "memory"; Fig. 32, col. 11, lines 41 – 64),* a time from which the path status information is effective *("…..new sources learned may take a different path than those learned earlier. When source addresses timeout and are relearned, they may take a different path than during their previous instantiation depending on link loads at the current time,…."; col. 10, lines 49 – 65)* or packet identification information.

Bare does not disclose explicitly scheduling means for estimating an arrival prediction time of a packet in each path based on said path status information and based on a packet transmission history after said path status information is validated and updating path selection or selection priority based on said estimated arrival prediction time.

Wallentin et al. in the same field of endeavor teach scheduling means for estimating an arrival prediction time of a packet in each path based on said path status information and based on a packet transmission history after said path status information is validated *(Abstract, Fig. 7, Fig. 8, elements 63, 64, "……, predicted packet arrival time,….,,, based on the stored past packet arrival time"; col. 9, lines 12 – 41, col. 10, lines 18 – 47)*; and updating path selection or selection priority based on said estimated arrival prediction time *(Fig. 12, Fig. 13, col. 12, lines 19 – 44)*. At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Bare to include the features of scheduling means for estimating an arrival prediction time of a packet in each path based on said path status information and based on a packet transmission history after said path status information is validated and updating path selection or selection priority based on said estimated arrival prediction time as taught by Wallentin et al. One of ordinary skill in the art would be motivated to do so for providing mobile communications, and in particular, to dynamically adapting a data communication connection to an optimal state *(as suggested by Wallentin et al., see col. 1, lines 14 – 16).*

Regarding claim 22, Bare discloses the node claimed wherein said scheduling means selects as a packet transmission path a path having a largest estimation value of

a data amount which can be completely received by a specific time at a reception node *(col. 12, lines 51 – 63, col. 13, lines 5 – 8).*

Regarding claim 23, Bare discloses the node claimed wherein said scheduling means interrupts data transmission according to an estimated current path status for each path *(col. 12, lines 51 – 63, col. 20, lines 2 – 13)*. **Regarding claim 26**, Bare discloses the node claimed, further comprising: a table in which an address of a communications interface is associated with a destination address reachable using said communications interface *(col. 1, lines 66 – 67, col. 2, lines 1 – 12, col. 13, lines 12 – 14)*; and routing means for selecting a communications interface corresponding to a destination address of a packet to be transmitted, from said table, selecting a communications interface corresponding to said transmission source address or a communication interface from said selected communications interface when said transmission packet has a information specifying a transmission source address or a communications interface *(col. 12, lines 51 – 64; col. 13, lines 22 – 27, col. 14, lines 55 – 65)*,, and sending said transmission packet to a selected communications interface *(col. 35, lines 39 – 61, col. 37, lines 44 – 50).*

Regarding claim 26, Bare discloses the node claimed, further comprising: a table in which an address of a communications interface is associated with a destination address reachable using said communications interface *(col. 1, lines 66 – 67, col. 2, lines 1 – 12, col. 13, lines 12 – 14)*; and routing means for selecting a communications interface corresponding to a destination address of a packet to be transmitted, from said table, selecting a communications interface corresponding to said transmission source address or a communication interface from said selected communications interface when said transmission packet has a information specifying a transmission source address or a communications interface *(col. 12, lines 51 – 64; col. 13, lines 22 – 27, col. 14, lines 55 – 65)*,, and sending said transmission packet to a selected communications interface *(col. 35, lines 39 – 61, col. 37, lines 44 – 50).*

Regarding claim 28, Bare discloses a non-transitory computer-readable medium storing a node control program *("the software" as node control program; col. 79, lines 50 – 65; "storage medium" as non-transitory computer-readable medium, col. 4, lines 51 – 60; "CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31)*, which is applicable to a processor-controlled node that can select plural packet transmission paths *(""CPU, FIFO, memory"; Fig. 32, col. Lines 41 – 64; col. 2, lines 22 – 31)*, said node control program controlling the node as: monitor a selectable path status of each path for each packet input to a transmission node and monitoring path status information on said path status *("….be fairly distributed across all possible paths,…..The path picked will be based on cost.,…..."; col. 10, lines 6 – 14; "…absorbs the packet information,……, the packet data is stored either in the high priority inbound queue or the low priority*

inbound queue,…., forward function routes the received packet to the identified destination port,….. "; col. 12, lines 30 – 59).

Bare does not disclose explicitly identification information on time or packet validating said path status information; and estimate a packet arrival prediction time in each path based on said path status information and based on a transmission history of a packet after said path status information is validated and updating path selection or selection priority based on said estimated arrival prediction time.

Wallentin et al. in the same field of endeavor teach identification information on time or packet validating said path status information *(Fig. 7, element 122, col. 8, lines 64 – 67, col. 9, lines 1 – 18; Fig. 8, col. 10, lines 18 – 47)*; and estimate a packet arrival prediction time in each path based on said path status information and based on a transmission history of a packet after said path status information is validated *(Abstract, Fig. 7, Fig. 8, elements 63, 64, "……, predicted packet arrival time,….,,, based on the stored past packet arrival time"; col. 9, lines 12 – 41, col. 10, lines 18 – 47)*; and updating path selection or selection priority based on said estimated arrival prediction time *(Fig. 12, Fig. 13, col. 12, lines 19 – 44)*. At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Bare to include the features of identification information on time or packet validating said path status information; and estimate a packet arrival prediction time in each path based on said path status information and based on a transmission history of a packet after said path status information is validated and updating path selection or selection priority based on said estimated arrival prediction time as taught by Wallentin et al. One of ordinary skill in the art would be motivated to do so for providing mobile communications, and in

particular, to dynamically adapting a data communication connection to an optimal state *(as suggested by Wallentin et al., see col. 1, lines 14 – 16).*

Regarding claim 35, Bare discloses the node control program claimed, further controlling said scheduling means so as to select as a packet transmission path a path having a largest estimation value of a data amount which can be completely received by a specific time at a reception node *(col. 12, lines 51 – 63, col. 13, lines 5 – 8)..*

Regarding claim 36, Bare discloses the non-transitory computer-readable medium claimed, further controlling said scheduling means so as to interrupt data transmission according to an estimated current path status for each path *(col. 12, lines 51 – 63, col. 20, lines 2 – 13).*

Regarding claim 39, Bare discloses the non-transitory computer-readable medium claimed further operating as routing means that: selects a communications interface corresponding to a destination address of a packet to be transmitted, from a table in which an address of a communications interface is associated with a destination address reachable using said communications interface *(col. 1, lines 66 – 67, col. 2, lines 1 – 12, col. 13, lines 12 – 14)*, selects a communications interface corresponding to said transmission source address or a communications interface, from said selected communications interface when said transmission packet has information specifying a transmission source address or a communications interface *(col. 13, lines 22 – 27, col. 14, lines 55 – 65)*, and transmits said packet to be transmitted, to said selected communications interface *(col. 35, lines 39 – 61, col. 37, lines 44 – 50).*

9. Claims 11, 24, 37, 12, 25, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bare (US 6865160 B1) and Wallentin et al. (US 6347091 B1) as applied to claims 1, 10, 15, 23, 28, 36, above, and further in view of Greenberg et al. (5878026).

Regarding claims 11, 24, 37, the combined system of Bare and Wallentin et al. does not disclose explicitly wherein a condition for interruption of said data transmission is that an estimated reception completion time is equal to or greater than a specific value.

Greenberg et al. in the same field of endeavor teach wherein a condition for interruption of said data transmission is that an estimated reception completion time is equal to or greater than a specific value *(Fig. 10, col. 3, lines 54 – 65, col. 7, lines 35 – 56)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Bare and Wallentin et al. to include the features of wherein a condition for interruption of said data transmission is that an estimated reception completion time is equal to or greater than a specific value as taught by Greenberg et al. in order to provide communication networks, and more specifically to the allocation of resources between book-ahead and instantaneous-request calls in an integrated-services network *(as suggested by Greenberg et al., see col. 1, lines 6 – 9).*

Regarding claims 12, 25, 38, the combined system of Bare and Wallentin et al. does not disclose explicitly wherein path selection or transmission interruption is determined according to a policy different for each attribute of transmission data.

Greenberg et al. in the same field of endeavor teach wherein path selection or transmission interruption is determined according to a policy different for each attribute of transmission data *(Fig. 9, col. 3, lines 23 – 36, lines 48 – 65; col. 6, lines 35 – 46).* It

would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Bare and Wallentin et al. to include the features of wherein path selection or transmission interruption is determined according to a policy different for each attribute of transmission data as taught by Greenberg et al. in order to provide communication networks, and more specifically to the allocation of resources between book-ahead and instantaneous-request calls in an integrated-services network *(as suggested by Greenberg et al., see col. 1, lines 6 – 9).*

Response to Arguments

10. Applicant's arguments filed on 02/28/2011 with respect to claims 1, 3 - 12, 15 – 26, 28 – 39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. In case of the claims/claimed subject matters are modified/amended, Applicant(s) is/are respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify as well as to ascertain the metes and bounds of the claims/claimed subject matters.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571)272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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